

CLAIMS

1. A needle bar drive apparatus for a sewing machine comprising:
a dedicated drive source for driving a needle bar of the sewing machine
5 to move up and down; and
control means for, when a sewing operation is to be performed,
controlling said drive source to cause the needle bar to move up and down
within a predetermined stroke range, but, when no sewing operation is to be
performed, controlling said drive source to cause the needle bar to retreat to a
10 predetermined evacuation position set above a top dead center within the
predetermined stroke range.
2. A needle bar drive apparatus as claimed in claim 1 wherein said control
means is also capable of varying a timewise pattern of upward and downward
15 movement of the needle bar within the predetermined stroke range.
3. A needle bar drive apparatus as claimed in claim 1 wherein the stroke
range is variable, in accordance with a thickness of an object for sewing, by
variably setting a position of the top dead center within the predetermined
20 stroke range.
4. A needle bar drive apparatus as claimed in claim 1 wherein said drive
source is a rotary motor that drives the needle bar to move up and down via a
movement conversion mechanism for converting rotary movement of said
25 drive source into linear reciprocating movement.
5. A needle bar drive apparatus as claimed in claim 1 wherein the sewing

machine includes a plurality of sewing heads, and said drive source is provided for each of the sewing heads.